Ohio Organic Producers:
Final Survey Results

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Special Circular 174
Ohio Agricultural Research and Development Center
In Partnership With Ohio State University Extension

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Introduction

In 1998 faculty, staff, and directors of The Ohio State University's Ohio Agricultural Research and Development Center (OARDC) agreed to begin a research and outreach program to serve Ohio's organic farmers. The initiative is called the Organic Food and Farming Education and Research program or OFFER. Efforts officially began in 1999 with preparation of research areas at Wooster and implementation of a survey to assess the needs of organic producers as well as producers who are in transition to using organic systems.

The survey was organized by a committee consisting of:

- Jeff Dickinson, executive director of the Stratford Ecological Center near Delaware, Ohio
- Charles Eselgroth, Ross County farmer and board member of the Innovative Farmers of Ohio
- Richard Moore, associate professor, Ohio State University Department of Human and Community Resource Development
- Harv Roehling, Butler County producer and president of the Ohio Ecological Food and Farm Association (OEFFA)
- Phil Rzewnicki, OSU On-Farm Research Coordinator and Extension Associate
- Deborah Stinner, research scientist and adjunct associate professor, The Ohio State University Department of Entomology.

A total of 1,086 questionnaires were mailed on April 30, 1999, to the combined mailing lists of OEFFA, both Ohio chapters of the Organic Crop Improvement Association (OCIA), and the Innovative Farmers of Ohio. Each mailing included a five-page producer questionnaire section and a one-page consumer questionnaire. The deadline for submitting survey responses was set at May 31, 1999.

One hundred and fifty farmers returned producer questionnaires through the months of May and June. Nine of these classified themselves as all conventional. Survey results were compiled on the remaining 141 producers of organic commodities. OEFFA leaders estimate there are currently 250 organic producers in the state. Thus, survey responses are from slightly more than half the known number of Ohio organic growers.

It was anticipated that a variety of organic farm systems would be represented in Ohio. As a result, approximately half the producer questions were open-ended to

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allow respondents flexibility in responses. Whenever possible, responses were grouped by similarity for frequency tables. Readers of this report may be interested in the detailed, individual responses compiled in separate documents available upon request from the author.

Two hundred eighteen consumer questionnaires were returned. A separate report compiled by Richard Moore will discuss the analysis and results related to consumer interest in organically produced food.

Organic Farm Categories and Commodities

The 141 organic producers placed themselves into one of three categories. Table 1 summarizes the number, years of experience, and acreage figures of these producers. Some 59% checked "all organic," 23% were "mixed organic and conventional operation," and 18% were "in transition towards being certified organic." The total number of acres farmed is larger than the organic acres listed since many of the respondents provided figures on their total land owned or rented, including farmstead and wooded areas. It is interesting to note that the total acres farmed of the mixed organic/conventional operations are more than twice the size on average of units that are all organic. Transitional respondents are often those who recently entered into farming.

To enable some detailed analysis and organizing of comments, respondents were further coded by the organic products they produced: a = agronomic, v = vegetable, f = fruit, and l = livestock. Many were combinations of these products, e.g., a grower growing soybeans, tomatoes, and sheep organically would be coded "avl." Table 2 illustrates the organic product makeup of survey respondents. Table 3 shows the acreage and category makeup of the farm types

Table 1. Categories, Years of Experience, and Acre Size of Ohio Organic Growers.

	n	Years Farmed Organically	Years Certified Organic	Total Acres Farmed	Average Organic Acres
All Organic	83	11.1	4.6	118.5	99.4
Mixed	33	10.9	2.9	343.4	84.6
Transitional	25	4.4	0	55.5	34.3
Total producers	141	9.9	3.9	160.6	84.4

Table 2. Product Makeup of Ohio Organic Producers (n = 141)

Farm Type	a	af	al	av	avfl	avf	avl	f	l	v	vf	vl	vfl
%	25	1	14	5	4	1	6	3	6	22	9	2	4

a = agronomic crops, v = vegetables, f = fruit, l = livestock or livestock products.

Table 3. Acreage and Categories of Representative Farm Types (At Least 10 Respondents).

Farm Type	n	Acres Farmed	Organic Acres	All Organic	Mixed Operation	Transitional
a	35	347	131	51%	29%	20%
al	20	212	145	45%	40%	15%
v	30	15	15	74%	6%	19%
vf	12	9	5	50%	42%	8%

where there were at least 10 survey respondents representing that farm type. There is an obvious acreage size difference between those who grow agronomic crops and horticultural crops.

Reasons for Farming Organically

Responses to an open-ended question asking growers why they farm organically or are in transition to do so were compiled (Table 4). The most frequently stated reasons were related to concern for the environment or stewardship of natural resources, with soil being mentioned most often. Many respondents offered two or three reasons for using organic production systems. Table 4 gives an indication of the primary motivators for organic farming.

Crop and Livestock Production

Field crop, vegetable, fruit, and livestock listings in the questionnaire were selected by the survey committee from the listings used in the national surveys conducted by the Organic Farming Research Foundation. Products not known to be grown in Ohio were left out of the Ohio survey. Eggplant and hogs were inadvertently left out of the listings, although each was written in once by respondents.

Table 4. Categories and Frequency of Reasons for Farming Organically.

Reason Cited	Frequency of Response
Environment/stewardship of natural resources	64
Avoid exposure or use of chemicals	30
Sustain farming for future	20
More money	19
Health of self and family	18
Quality of food	18
Lower input costs	18
Consumer demand/marketability	15
Family tradition/way of life	15
Health of others	15
Spiritual/philosophical/God's will	9
Fun/organic production interests me	3
Self-sufficiency	2
Diversification	1
People contact	1

Tables 5, 6, and 7 report acreage figures for organically grown field crops, vegetables, and fruits, respectively. During the analysis, it became clear that the average acreage devoted to each vegetable or fruit crop was not as important as the median value since large acreage tended to skew averages upward. Mean or average and median values are based on the number of producers who actually grew the crop. For the horticultural crops, the 75th percentile of acreage was also determined to provide more information. Also, the relative number or percentage of producers actually growing each crop is listed.

Table 5. Acreage Information on Ohio Organic Agronomic Crops.

	All Agronomic Respondents (n = 78)	Mixed Farms (n = 21)	Transition Farms (n = 13)	Totally Organic Farms (n = 44)		
	Acres	Acres	Acres	Acres		
Avg. Org. Field Crop Area	120.4	125.4	60.3	139.5		
Median Org. Field Crop Area	73.0	67.5	60.0	75.0		
	% of Farms	% of Farms	% of Farms	% of Farms	Average Acres	Median Acres
Hay: harvested	55	50	50	59	36	25
Hay: grazed (pasture)	45	40	50	45	22	20
Corn: livestock feed	41	50	30	39	25	16
Soybeans: other	41	50	0	45	91	46
Wheat	36	40	30	36	67	45
Clover	32	30	20	36	47	39
Alfalfa	31	40	30	27	28	20
Corn: other processing	23	10	20	30	40	30
Oats	18	15	10	20	20	18
Spelt	16	10	10	20	61	20
Soybeans: feed	15	15	20	14	30	26
Rye	14	10	0	18	78	19
Hairy Vetch	9	10	0	11	59	25
Popcorn	4	0	0	7	19	19
Sunflowers	4	5	0	5	21	21
Barley	1	0	0	2	4	-
Buckwheat	1	0	0	2	40	-
Dry Beans	1	0	0	2	8	-
Sudex	1	0	0	2	-	-
Turnips	1	0	0	2	2	-

Two relatively large organic vegetable operations were not included in the acreage figures. One was a grower with 130 acres of organic vegetables, of which 110 acres were processing tomatoes, 10 acres were processing cabbage, and 10 acres were processing peppers. The other farm solely produced herbs on 30 acres.

Hay grown for harvesting is the most frequently grown field crop. Tomatoes, peppers, and brassica crops are the three most

Table 6. Acreage Information on Ohio Organic Vegetable Crops.

	All Organic Vegetable Farms (n = 73)	Mixed Farms (n = 12)	Transition Farms (n = 9)	Totally Organic Farms (n = 52)			
	Ac	Ac	Ac	Ac			
Avg. Organic Veg. Area	2.56	13.36	1.56	2.55			
Median Org. Veg. Area	0.981	0.76	1.00	1.00			
	% of Farms	% of Farms	% of Farms	% of Farms	Average Acres	Median Acres	75th Pct Acres
Alliums: onions, garlic, shallots	49	73	43	53	0.233	0.025	0.250
Asparagus	23	55	14	21	0.260	0.023	0.252
Brassicas: cabbage, broccoli, kale	56	91	57	57	0.198	0.023	0.138
Chenopods: beets, chard, spinach	52	73	29	60	0.203	0.021	0.086
Composites: endive, lettuces	47	73	29	60	0.219	0.057	0.319
Curcurbits: cukes, melons, squash	51	64	43	57	0.260	0.076	0.263
Cut Flowers	32	18	14	43	0.352	0.040	0.500
Herbs: culinary and medicinal	48	36	29	62	0.561	0.011	0.031
Market Beans	49	64	14	60	0.910	0.042	0.500
Market Peas	41	55	43	45	0.344	0.046	0.458
Mushrooms	7	9	0	9	*		
Ornamentals: annual or perennial	16	18	14	19	0.718	0.011	0.096
Peppers	62	91	71	64	0.155	0.023	0.087
Potatoes	44	73	29	47	0.314	0.063	0.500
Sweet Corn	45	64	57	47	0.771	0.500	1.00
Tomatoes	66	100	71	68	0.256	0.063	0.209
Umbels	8	9	0	11	0.263	0.021	0.273

* No area calculated — One producer reported by number of logs inoculated with mushrooms.

Table 7. Acreage Information on Ohio Fruit and Tree Growers.

	All Organic Fruit & Tree Growers (n = 30) Ac	Mixed Farms (n = 9) Ac	Transition Farms (n = 3) Ac	Totally Organic Farms (n = 18) Ac			
Average Area	0.868	1.20	0.58	0.73			
Median Area	0.268	0.13	0.58	0.19			
	% of Farms	% of Farms	% of Farms	% of Farms	Average Acres	Median Acres	75th Pct Acres
Pomes — apples, pears	53	44	33	61	1.535	0.126	0.551
Brambles	43	56	33	33	0.497	0.069	0.354
Strawberries	33	67	0	22	0.076	0.028	0.041
Blueberries	27	11	0	39	0.209	0.016	0.219
Grapes	23	22	33	22	0.512	0.069	0.627
Stone Fruit — cherries, plums	23	22	0	28	0.173	0.024	0.027
Nut crops	7	22	0	0	3.0	3.0	-
Christmas trees	3	0	0	6	1.0	-	-

frequently grown vegetable groups among organic growers surveyed.

Livestock/Animal Products

Forty of the 141 respondents organically produce livestock or livestock products. Since there were small numbers of respondents in the mixed farm (n = 8) and transitional farm (n = 5) categories, their livestock data were pooled with the all-organic livestock operations (n = 27) for analysis. Beef operations were the largest proportion of organic livestock farms, followed by poultry.

Beef

Twenty-one farms (15% of the survey total) finished beef: Average number of head = 10 with a standard deviation of 13 and median size of 8 head.

Eight farms (6% of the survey total) raised market feeder cattle. Average number of calves = 11, s.d. = 13, median = 5.

One farm indicated that they sold breeding beef seedstock. Herd size is 35.

One farm indicated that they raised replacement heifers. Herd size is 20.

Poultry

Thirteen farms (9% of the survey total) reported producing organic eggs. Average production for 1998 was 523 dozen with a standard deviation of 667. Median level of egg production was 300 dozen.

Ten farms (7% of the survey total) reported producing organic poultry meat. Average production was 226 birds with a standard deviation of 228. Median level of poultry raised for meat was 175.

Sheep

Ten farms (7% of the survey total) raised sheep organically. Average number of head equaled 21 with a standard deviation of 21. Median number of head was 10.

Dairy

Two dairy farms returned surveys. One operation produces 4,500 hundredweight of milk per year. The other reported producing 4,000 hundredweight.

Miscellaneous

Livestock operations with written-in responses included one swine farm, one fallow deer farm (40 head), and a farm with a single llama.

Organic Marketing Channels

Respondents were asked to review a list of marketing outlets to indicate what percent of gross sales passed through these outlets. They were also given an opportunity to add to the list. Of the 141 survey respondents, 124 gave an indication of their means of marketing. Gross sales percentages were used to report the priority ranking of markets as primary or secondary.

Primary Market Outlet

Percent of respondents (n = 124)

- 34% Though a broker
- 24% Direct contact with consumer by roadside stand, your own store, or farmers market
- 19% Direct contact with retail stores
- 5% Direct contact with consumer by CSA (Community Supported Agriculture)

Most frequently written-in primary markets were: 5% direct to processor, 2% direct to consumer such as friends or neighbors, and 2% direct to restaurants.

Ninety-three percent of those who use a broker for the primary market outlet grew agronomic crops. For 19% of survey respondents, going through a broker was their only market channel. This group of respondents was made up of nearly all field-crop producers.

Fourteen percent of survey respondents used direct contact with consumers by roadside stand, own store, or farmers market as their only market outlet.

Nearly all (91%) of the growers who use direct contact with a retail store as the primary market channel rely on additional market outlets.

Secondary Market Outlet

Forty-seven percent of survey respondents had at least two market channels.

Percent of respondents using as a second market:

- 18% Direct contact with consumer by roadside stand, your own store, or farmers market
- 7% Direct contact with consumer by CSA
- 6% Direct to processor
- 4% Direct to consumer (friend, neighbor)
- 3% Sell to another farmer
- 2% Direct sale to restaurant
- 7% Use miscellaneous means of marketing (additional means include: word of mouth, produce auctions, livestock sales, conventional milk market, website, wholesale to greenhouse, local paper)

Multiple Markets

Some 13% of the survey respondents use more than two markets. For a third market, 6% use a CSA, 3% use direct sales to a restaurant, and 4% use miscellaneous means. Only one respondent indicated using a fourth market channel. In that case, it was direct sales to a restaurant.

Determining Consumer Demand

In the questionnaire, producers were asked to write in how consumer demand was determined. Answers were sorted by three broad categories — primarily horticultural products, primarily field crops/livestock, and mixed (sales depended on both previous categories). Horticultural producers depend largely on customer feedback as determined by direct contact or sales. Field crop or livestock producers are not as directly linked with consumers and rely more on brokers or information learned from sources other than consumers.

The frequencies of responses submitted by survey respondents follow.

Primarily Horticulture Products

Previous sales/experience	15
Survey, observe, listen to customers	11
Publications/reading	6
CSA subscriptions	5
Trial and error	4
Talk to retail merchants	2
Response to advertising	1
Only sell extra after own needs	1
Can't meet demand as it is	1
Talk to greenhouse operator	1
Client eating habits	1
Per capita consumption data	1
OSU consumer preference survey	1
Create demand with low prices	1

Primarily Field Crop and/or Livestock

Rely on broker or contract	10
Customer requests/ask customers	9
Discussions with other producers	4
We don't assess	4
Read	2
Call markets	1
Consumer demand/processor concern	1
Don't deal directly with consumers	1
Long-term agreement	1
Previous sales	1
Price	1
Sell wholesale	1
Word of mouth	1

Mixed

Customer requests/ask customers	5
Previous sales	3
From broker or contract	2
Pre-growing season agreement	1
They call me	1
Trial and error	1
Prices	1

Primary and Secondary Market Areas

One hundred twelve recipients of the questionnaire provided written-in responses to a request to identify the geographic areas they considered their primary and secondary markets. Where more than one response was received, a number following the market area indicates multiple citings. Organic field crop and livestock producers are much more dependent on having their goods sold outside of Ohio than are horticultural producers. More than 60% of the markets mentioned by the field crop/livestock growers are outside Ohio and approximately 20% depend on marketing outside the United States. For vegetable and fruit marketing, local or within a nearby county is the predominant market area. Only 9% of the market areas listed by vegetable and fruit producers were outside Ohio.

Vegetables/Fruit

Primary Market Areas

Athens
Athens/Marietta
Belmont County
Carroll County
Cincinnati area 3
Cleveland area 8
Clinton County
Columbus area 3
Eastern Ohio
Holmes County
Licking County 2
Local community 8
Montrose/West Akron
Muskingum County
NE Ohio
NW Ohio 2
Pacific Rim
Pittsburgh suburbs 2
Richland County
Southeastern Ohio
Stark County
Summit County
Toledo 2
Wayne County in Indiana
Wooster 2
Youngstown

Secondary Market Areas

Akron 2
Ash City
Bowling Green
Butler County
Cincinnati area 2
Cleveland Heights
Columbus area 3
Delaware, Ohio
Guernsey County
Harrison County
Hocking Hills
Johnstown
Kent/Ravenna/Stow/Hudson
Lima
Local
Lorain/Medina Counties 2
Nelsonville
Northern Kentucky
Oxford
Pittsburgh
Sugarweed, Ohio
United States
Upper Sandusky
Wooster

Field Crops/Livestock

Primary Market Areas

Central Ohio
Cleveland area
Columbus area
Eastern United States 2
Foreign/World 7
Indiana
Japan 5
Johnstown
Knox County
Local 4
Michigan
Midwest 2
Montgomery County
Ohio 2
Ohio and surrounding states
Out of state 2
Pennsylvania
Toledo
United States
West Central Ohio
West Virginia
Westmoreland County, Pa.

Secondary Market Areas

Akron area
Bryan, Ohio
Cincinnati area
Columbus area
Eastern United States
Indiana
Local 2
Massachusetts
Miami Valley area

Michigan	3
Midwest	3
Montana	
Newark/Mt. Vernon	2
Ohio	4
Overseas	2
Pittsburgh area	
United States	3

Organic Rotations Practiced

Ohio organic vegetable growers mostly rotate among general vegetable families — solanaceous (many referred to this group as the "nightshades"), legumes, squash or curcurbits, leafy greens, brasssicas, and root crops. These rotations usually occur simultaneously each season by entire fields within a farm or individual beds in a single field. If there is some concentration on particular groups, e.g., curcurbits and solanaceous, then there may be only a three-step rotation — curcurbits/solanaceous/all other families.

Nearly all the vegetable producers grow a cover crop between growing seasons, usually a small grain such as winter rye or wheat, which is turned under in the spring. A small portion include hairy vetch with the small grain as green manure.

Approximately 15% of the vegetable growers stop growing vegetables completely in a field or bed for a period of one to two years. In the interim years between vegetables, a clover crop or a grain crop may be grown.

Specialty crop growers, e.g., ginseng or flower bulbs, reported alternating with another unrelated specialty crop or leaving the ground fallow for approximately two years.

Field-crop producers reported rotations ranging from two years to seven years in length. Rotations including hay (usually alfalfa or clover) varied by a year or two, depending on the outcome of the hay. In general, the frequency of year-lengths were: two years, 6%; three years, 35%; four years, 43%; five years, 13%; six years, 2%; and seven years, 2%.

The most frequent field-crop rotation reported was corn-soybeans-small grain (winter wheat, spelt, or winter rye sown in the third year) mixed with clover. In the spring of the fourth year, the grower would either turn in the cover crop for green manure going into corn or let the small grain and clover develop into a hay field.

In 75% of the field-crop rotations reported, corn and soybeans were in the rotation. Corn immediately preceded soybeans in 83% of these cases, soybeans immediately preceded corn in 13%, and at least one crop separated the two in the remaining 4%. Corn was never reported to be grown two years in a row.

A small grain, usually a winter small grain such as wheat, spelt, or rye, was included in 87% of the field-crop rotations. When small grain types were identified (several respondents only wrote "small grain"), winter wheat was mentioned 42% of the times, spelt 33%, rye 13%, and oats 11%.

Sixty-three percent of the field crop rotations had at least one year of hay in the rotation. Twenty-two percent maintained two or more years of hay. As may be expected, respondents who have organic livestock operations were more likely to incorporate hay into their rotations — 81% of organic livestock producers grew at least one year of hay whereas 50% of the producers without organic livestock did. Of the organic livestock producers, 33% maintained two or more years of hay. Of the ones without organic livestock, 14% maintained two or more hay years.

The general term "hay," with no indication of forage type, was used by 47% of the producers using at least one year of a hay crop in their field-crop rotations. Clover was

specifically identified as the hay crop in 21% of these rotations; however, in only two situations was the clover specifically identified as red or sweet clover. Alfalfa was named as the hay involved in 21% of hay rotations as well. Clover mixed with grasses was named 6% of the time, and clover mixed with alfalfa and grass was mentioned in 4% of the rotations including hay.

Buckwheat was used in 9% of the vegetable rotations reported, and then it was only used as an optional green manure cover crop. Buckwheat was found in only 3% of field-crop rotations and was harvested as a crop in those cases.

Rotations for Transition to Certified Organic

Rotation sequences for field-crop producers relied heavily on hays, soybeans, and small grains with the avoidance of corn during the three years of transition prior to growing organic crops. Seventy percent of the reported transition rotations (n = 40) included hay. Clover or alfalfa or hay or grazed forage were grown in the first year in 33% of the rotations; they were grown in the second year in 33% of the rotations (22% grown through years one and two); and 60% had these forages in the third or last year of transition (18% all three years).

Corn was present in only 33% of the three-year transition periods. Corn was present in the first year in 15% of transition rotations, and second-year appearances were 15% of transitions. In only 3% of cases was it in the last year of transition. Corn was never grown twice within a transition rotation.

Soybeans, which are a legume, were a desirable crop for transitioning ground to be certified. Soybeans were found in 60% of transition rotations, appearing 30% of the time in the first year, 15% in the second year, and 15% in the third year. Soybeans were never grown more than one year in any of the reported transition sequences.

Small grains were grown in 58% of the rotations. One producer reported growing small grains through all three transition years. Small grains were usually grown only one of the years, with 13% of the transition rotations including small grain in the first year, 30% in the second year, and 15% in the third year. Identified small grains were fairly evenly split between winter wheat and spelt, with oats being identified in only 6% of the transitions.

Only seven transition plans were reported by vegetable growers. A list of these follows:

- Hay - beans - winter rye
- Buckwheat - clover or rye - clover
- Small grains and hairy vetch
- Cover crop after sheet composting
- Green manure to be plowed down (three farms)
- Winter wheat - buckwheat - annual rye
- Coming out of fallow.

Barriers to Productivity

Survey participants responded to a question asking them to indicate and rank their top three areas of concern or barriers to productivity. A list of 11 areas of concern was provided — weeds, insect pests, plant diseases, soil fertility, yields, variety selection, operating loans, quantity of labor, quality of labor, storage of product, and irrigation — and an option to describe additional concerns. Table 8 summarizes their responses and rankings.

Weeds were the clearly the most cited area of concern or barrier to productivity. Weeds were ranked as the most important barrier to production by 47.0% of respondents. Having difficulty with weeds was placed in the top three rankings by 74.3% of respondents.

Overall importance of barriers places soil fertility as the second most important area

Table 8. Areas of Concern or Barriers to Productivity — All Farm Types (n = 132).

All Respondents	Ranked No. 1	Ranked No. 2	Ranked No. 3	Total	Overall Rank
Area of Concern	%	%	%	%	
Weeds	47.0	12.1	15.2	74.3	1
Soil Fertility	8.3	20.5	17.4	46.2	2
Insects	6.1	14.4	7.6	28.1	3
Quantity of Labor	9.8	9.8	6.1	25.7	4
Irrigation	4.5	6.1	7.6	18.2	5
Yields	2.3	6.1	9.8	18.2	6
Plant Diseases	3.8	5.3	8.3	17.4	7
Storage	0.1	6.8	6.8	14.3	8
Quality of Labor	1.5	6.1	2.3	9.9	9
Marketing	3.0	0	0.8	3.8	10
Wildlife	1.5	0.8	0	2.3	11
Time	0.8	0	1.5	2.3	12

of concern, being ranked first, second, or third by 46.2% of respondents.

The quantity of labor concern was largely equated with producers not having enough time or energy to devote to all that has to get done. In many cases, they could not afford to hire extra help.

Barriers were subsequently analyzed for agronomic and horticultural producers. Results are reported in Tables 9 and 10. Obtaining better yields, storage of grain, and having varieties suited to organic systems are more important issues for field-crop producers than the general survey population. For horticultural producers, insects, irrigation, and plant disease control are larger issues than for the general survey population.

Growing Commodities Without Certification on an Organic Farm

The farmers were asked if they grew any commodities that were not certified organic. Responses totaled 128 with 56% answering yes and 44% no. Affirmative responses included non-organically grown commodities as well as organically grown commodities that were not certified. Respondents were given an opportunity to indicate their non-certified commodities and explain why their operations were not totally organic.

The most frequently stated reason (n = 15) for having non-certified commodities was that the farms were in transition to being certified. The second most cited reason (n = 7) was that a landlord decided how the land was farmed. The next most frequent reasons (n = 6) were the lack of certified organic feed for livestock and certification was considered too costly. Other reasons mentioned several times were a lack of extra market value (n = 4) and too many acres to manage as organic (n = 3).

In Table 11 it is interesting to note that 31% of producers who operate their farms entirely under organic methods grow commodities that are not certified as organic. This is an indication that although some commodities are not certified, producers

Table 9. Areas of Concern or Barriers to Productivity — Agronomic Producers — a and al Farm Types Only (n = 50).

Agronomic Producers	Ranked No. 1	Ranked No. 2	Ranked No. 3	Total	Overall Rank
Area of Concern	%	%	%	(>2.0%)	
Weeds	54.0	18.0	10.0	82.0	1
Soil Fertility	12.0	26.0	20.0	58.0	2
Yields	6.0	12.0	20.0	38.0	3
Insects	0.0	12.0	6.0	18.0	4
Storage	2.0	6.0	10.0	18.0	5
Varieties	0.0	4.0	12.0	16.0	6
Quantity of Labor	8.0	2.0	2.0	12.0	7
Quality of Labor	0.0	6.0	4.0	10.0	8
Marketing	6.0	0.0	2.0	8.0	9

Table 10. Areas of Concern or Barriers to Productivity — Horticultural Producers — v, f, vf, vl, fl, vfl Farm Types Only (n = 54).

Horticultural Producers	Ranked No. 1	Ranked No. 2	Ranked No. 3	Total	Overall Rank
Area of Concern	%	%	%	(> 2.0%)	
Weeds	35.2	11.1	16.7	63.0	1
Insects	11.1	20.4	11.1	42.6	2
Irrigation	9.3	11.1	13.0	33.3	3
Soil Fertility	5.6	9.3	16.7	31.5	4
Plant Disease	3.7	7.4	20.4	31.5	5
Quantity of Labor	13.0	11.1	5.6	29.6	6
Storage	0.0	11.1	1.9	13.0	7
Quality of Labor	3.7	5.6	0.0	9.3	8
Yields	0.0	3.7	3.7	7.4	9
Varieties	1.9	3.7	0.0	5.6	10
Time	1.9	0.0	1.9	3.7	11

Table 11. Any Non-Certified Commodities Grown by Organic Growers?

Farm Category	Yes	No
All Organic	31%	69%
Mixed Organic and Conventional	100%	0%
Transition to Certified Organic	86%	14%*

$X^2 = 50.4$, Significant at $P = 0.01$.
* Transitional growers growing only apples or hay or clover who did not consider these crops as "commodities" in question No. 18.

still choose to grow them organically. Table 12 indicates there is no association between the types of commodities grown and the probability that an "all organic" grower will grow non-certified organic commodities.

Survey respondents were asked "If your goal is to be totally organic, is this goal shared by your family?" Ninety percent of 94 respondents to this question said yes. This demonstrates a strong commitment to growing all commodities organically. However, no conclusions with respect to having a goal of being totally certified organic can be made as the word "certified" was not included in this question.

Organic Farming as a System: Weak Links

A successful organic farm operates as a system incorporating natural processes in the soil, human resources, special marketing efforts, and long-term planning. In order to understand where common weaknesses may lie within such systems, producers were asked to identify the "weak link" in their entire organic management system.

Table 12. Any Non-Certified Commodities Grown by "All Organic" Growers?

Commodity Grown	Yes	No
Agronomic Crops	29%	71%
Vegetables	31%	69%
Fruit	38%	63%
Livestock	32%	68%

$X^2 < 1$, NS

Labor or time needed to control weeds mechanically as well as to prepare for fresh markets are major constraints for respondents. A frustration for several growers is market demand that exceeds their time and labor to meet it. Many have full-time off-farm jobs and can only devote part-time management to their operations. When weed control was stated as a weak link, it frequently was associated with statements on lack of time. Family support in terms of assisting was mentioned as lacking in a few cases.

Marketing was often mentioned, but several did not specify what the problems were. When respondents elaborated on markets, issues mentioned included lack of time to prepare, appearance of product, lack of local market, inability to sell all one produces, lack of knowledge of organic meat marketing, lack of familiarity with buyers.

Responses to Question of Weak Link in Producer's Organic Operation
(Responses with a frequency of at least three):

Labor/Time	34
Marketing/Sales	16
Self/Lack of experience	10
Weeds	8
Weather	5
Bookkeeping/Record keeping	3
Irrigation	3

Lack of adequate equipment	3
Soil conditions	3
Unable to price for profit	3

Operating Loans

Ninety-six of the 143 growers of organic commodities responded yes or no to a question asking if obtaining operating loans from banks was a problem. Many did not answer this question, with several indicating that this question did not apply to them or that operating loans were not even requested. Of the 96 respondents, 93% said obtaining operating loans was not a problem. It is likely that many of the "no" responses were a result of operating loans not being needed.

There were no noteworthy trends in acreage size among the respondents for whom operating loans were a problem. A possible trend may be by farm commodity as three producers depended primarily on marketing of agronomic crops, one on agronomic crops and livestock, one on livestock alone, and only two on vegetable crops.

Sources of Information

Those surveyed were asked to list their top three sources of information regarding organic production practices. One hundred and twenty-four respondents provided 329 answers. Many different sources were listed. Table 13 includes sources listed at least 10 times (3.0% of responses).

Table 13. Sources of Organic Production Information Used.

Sources of Information	% of 329 Responses
OEFFA or OEFFA Conferences	18.5
Other Organic Farmers	17.3
Related Magazines *(Acres, Organic Gardening, Small Farm, Gardening for Market)*	8.5
Books	8.3
Own experience or mistakes	6.1
Farm Publications (general or unspecified)	4.6
ATTRA (Appropriate Technology Transfer for Rural Areas)	3.3
OCIA	3.3
Rodale	3.3
Meetings or Field Days	3.0
Reading or Library	3.0

Suggestions on Allocating University Resources for Research or Information on Marketing

Survey participants were asked to write in a response to the following question: "If more Ohio State University resources were allocated to marketing, what research or information would be helpful to your marketing needs?"

Table 14 provides a summary of these comments by several categories of responses. Comments fell into five broad categories:

- Understanding the market
- Connecting buyers and sellers
- Developing markets within the state
- Developing one's own market
- Educating consumers.

The most frequent suggestion or request was assistance in connecting buyers and sellers of organic commodities. Clearinghouses or networks to provide producers contact with reliable buyers appears to be a very high priority. Assistance in being able to monitor product demand and how to price product for marketing are among the most frequent responses.

There was also a general concern to increase farm-based or local processing and marketing opportunities within the boundaries of the state.

In terms of university research related to consumers, emphasis was placed on investigat

Table 14. Frequency of Suggestions for Allocating University Resources in Marketing Research.

Understanding the Market	
Determining product demand	11
Determining prices people and brokers are willing to pay for organic food	4
Training on pricing for direct and wholesale markets	3
Knowing how to grow, schedule, and sell for direct market	3
Growing for restaurants	1
Researching benefits of farmers markets to local economy	1
Training in marketing to public institutions, e.g., hospitals, universities	1
Connecting Buyers and Sellers	
Developing local food and grain buying and selling networks	14
Developing clearinghouse of sellers and buyers	9
Increasing public awareness of CSAs	4
Providing CSA marketing information to local Extension offices	1
Developing Markets in State	
Developing cooperative markets	4
Developing new products to use organically grown crops	3
Attracting more food processing to Ohio	1
Developing organic milk market	1
Developing organic wheat milling within Ohio	1
Developing soft red winter wheat market	1
Increasing organic grain consumption for animal and human use	1
Locating trade shows to sell our goods	1
Developing more markets in Ohio	1
Developing One's Own Market	
Obtaining information on home product processing and sales	3
Developing own label and marketing a new product	2
Learning how to sell direct to foreign markets	1
Learning how to protect one's niche market from large agricultural processing interests	1
Educating Consumers	
Researching the nutritional value of organic food vs. conventionally grown and inform consumers	8
Preparing nutritious meals with unprocessed, non-packaged food	2
Providing information on nutritional advantages of grass-raised meat vs. grain-fed and hormone-raised livestock	2
Educating consumers to accept blemished or less than perfect food	1
Providing information on health benefits of eating lamb (cancer fighting)	1
Providing consumers with clear definition of "organic"	1

ing claims of nutritional benefits of organically produced food and informing consumers of those results. Producers are confident such results will be positive and that such information needs to be publicized.

Suggested Research Topics for OARDC in New Initiative

Survey participants were given an opportunity to list desired subject areas for OARDC researchers to pursue relevant to organic producers. Table 15 provides a summary of the comments by categories of responses.

Three topic areas were clearly more important than all others:

- Mechanical or non-chemical systems for weed control
- Soil nutrient balancing or fertility without synthetic fertilizers
- Evaluation of the nutritional value of organic products, both field crop and horticultural, relative to conventionally grown products.

Other frequently mentioned topics were:

- Cover crops for weed suppression and soil nutrients

Table 15. Frequency of Suggestions for OARDC Research for Organic Producers.

Pest Control	
Mechanical or non-chemical systems for weed control on farms	18
Insect control for vegetables	4
Perennial weed control (crops, vegetables, pasture)	3
Disease control — vegetables	2
Insect repellent — cover crops and companion crops	2
Alternatives to row net covers	1
Controlling squash bugs and flea beetles on vegetables	1
Cultivation techniques for transition farmers	1
Disease reduction through improved soil conditions	1
Effectiveness of bug traps	1
Grape fungal control	1
Impact of various mulches in weed reduction	1
Insect and disease control for fruit	1
Pest control benefits of rotations	1
Vegetable selection for raised beds vs. field cropping	1
Vegetable variety research for disease control	1
Product Quality	
Nutritional value of organic crops (field crop and horticultural) relative to non-organic products	10
Soil nutrient effects on grain quality	4
Quality of organic livestock feed	3
Food quality as a result of liming	1

Table 15 (continued). Frequency of Suggestions for OARDC Research for Organic Producers.

Crop Production Methods	
Soil nutrient balancing/fertility without synthetic fertilizers	11
Cover crops for weed suppression and soil nutrients	7
Best rotations	6
Field crop variety performance for organic systems	4
Foliar feeding of crops	3
Organic systems for increasing yields	3
Soil sustainability without livestock manure, e.g., green manures, natural products	3
More fruit crop research	2
Use of tillage instruments	2
Alternative crops (spelt, buckwheat, flint corn)	1
Avoiding GMO contamination	1
Effects of companion planting and inter-planting on vegetable yields	1
Increasing organic nitrogen availability	1
No-till vegetable production	1
Organic orchard methods	1
Organic soil amendments	1
Over-seeding legumes to maximize crop/vegetable growing time	1
Planting dates	1
Soil biology effects on nitrogen	1
Vegetable raised-bed machinery	1

Market Development	
Marketing organic products	6
Buyer and broker list development	4
Consumer acceptance of organic vs. conventional	4
Field-crop marketing and direct marketing	4
Valuing locally produced food for consumers	3
Consumer assessment of CSAs	1
Designs for small-scale processing	1
Development of white wheat or hard red winter wheat for flour	1
Organic cut flower demand	1
Urban market gardening	1

Economics	
Profitability of organic production systems	5
Affordable organic certification	2
Beginning farmer options with high land prices	1
Economical equipment suggestions to save labor	1
Economics of transition to organic	1

Table 15 (continued). Frequency of Suggestions for OARDC Research for Organic Producers.

Systems Approaches	
Organic research needs to be long-term and an examination of systems	5
Evaluation of biodynamic approaches	2
How to support acceptance of holistic resource management	1
Livestock	
Alternative livestock feeds and feed mixing for organic farms	3
Rotational grazing	3
Assess animal health in organic systems	2
Organic treatments for worms	2
Raising and finishing beef on grass only	2
Avoiding manure pathogen and contamination	1
Cattle fly control	1
Goats on pasture — pasture improvers	1
Irrigated pasture	1
Manure handling near urban settings	1
Pastured poultry	1
Simple, efficient manure composting methods	1
Transition Methods	
Crops and farming methods for transition to certified organic	3
Miscellaneous	
Environmental benefits of organic systems	4
Biodegradable mulch	2
Compost benefits	2
Heirloom vegetable varieties	1
Insecticidal soap effects on greenhouse potting soil conditions	1
Medicinal herbs	1
Recycling human waste	1
Winter greenhouse production	1

- Best rotations (field crop and horticultural)
- Marketing of organic products
- Profitability of organic production systems.

Survey Questionnaire

A survey was used to assess the needs of organic producers as well as producers who are in transition to using organic systems. The questionnaire used in this survey is reproduced in its entirety on the following pages.

The Ohio State University
Ohio Agricultural Research and Development Center

Organic Farm and Food Education and Research Program

Survey of OEFFA, OCIA (Chapters 1 and 2), and IFO Members

1. Please check the category that best describes your farm operation.

   Check one: ___ All organic

   ___ Mixed organic and conventional operation

   ___ In transition towards being certified organic

   ___ All conventional but interested in learning more about organic farming

2. How many years have you been farming organically? _____ years

3. How many years has your farm been certified organic? _____ years

4. Indicate the acreage you currently farm that applies to the following categories:

   _____ Total acres farmed

   _____ Organic acreage (If less than one acre, report in square feet.)

5. In the 1998 production year, which of the following field crops were organically grown on your farm? (Please indicate number of acres of each crop grown.)

Crop Category	**Acres**	**Crop Category**	**Acres**
Alfalfa	_____	Popcorn	_____
Barley	_____	Rye	_____
Clover	_____	Soybeans: feed	_____
Corn: livestock feed	_____	Soybeans: other	_____
Corn: other processing	_____	Spelt	_____
Dry Beans	_____	Turnips	_____
Hay: harvested	_____	Vetch, hairy	_____
Hay: grazed (pasture)	_____	Wheat	_____
Oats	_____	Other (please specify)	_____

6. For the 1998 production year, which of the following vegetable, herb, flower, or ornamental crops were organically grown on your farm for market? (Please estimate acres or square feet grown.)

Crop Category	Acres	or	Square Feet
Alliums: onions, garlic, shallots	_____		_____
Asparagus	_____		_____
Brassicas: cabbage, broccoli, kale...	_____		_____
Chenopods: beets, chard, spinach...	_____		_____
Composites: endive, lettuces....	_____		_____
Curcurbits: cukes, melons, squash	_____		_____
Cut flowers	_____		_____
Herbs: culinary and medicinal	_____		_____
Legumes: market beans	_____		_____
Legumes: market peas	_____		_____
Mushrooms	_____		_____
Ornamentals: annual or perennial	_____		_____
Solanaceous: peppers	_____		_____
Solanaceous: potatoes	_____		_____
Solanaceous: tomatoes	_____		_____
Sweet corn	_____		_____
Umbrels	_____		_____

7. For the 1998 production year, which of the following fruit, nut, and tree crops were organically grown on your farm for market? (Please estimate acres of square feet grown.)

Crop Category	Acres	or	Square Feet
Berries — blueberries	_____		_____
Berries — brambles	_____		_____
Berries — strawberries	_____		_____
Christmas trees	_____		_____
Grapes — table, juice, or wine	_____		_____
Nursery trees	_____		_____
Pomes — apples, pears	_____		_____
Stone fruit — cherries, plums	_____		_____
Nut crops	_____		_____

8. For the 1998 production year, which of the following livestock and/or animal products were produced organically on your farm for market?

Livestock/Animal Product		Livestock/Animal Product	
Beef - finished on farm	_____# of animals	Poultry - egg production	_____# of dozens
Beef - sold as feeders	_____# of animals	Poultry - meat production	_____# of animals
Dairy cattle	_____cwt milk	Sheep - meat and/or wool	_____# of animals

9. What are your reasons for farming organically or being in transition to organic?

_____

_____

_____

10. How do you market your commodities? Check one of the following or if more than one applies, please indicate approximately what percent of gross sales is represented by each.

_____ Through a broker

_____ Direct contact with retail stores

_____ Direct contact with consumer by roadside stand, your own store, or farmers market

_____ Direct contact with consumer by CSA (Community Supported Agriculture)

_____ Other (Please describe.)_____

11. How do you determine consumer demand?_____

_____

12. In terms of geographic regions, what are your primary and secondary marketing areas?

Primary _____ Secondary_____

13. If more Ohio State University resources were allocated to marketing, what research or information would be helpful to your marketing needs?

_____

_____

14. What is your current organic rotation?

_____

_____

15. What is your rotation for new ground in transition to be certified organic?

_____

_____

16. Indicate your top three areas of concern or barriers to productivity. Rank the following with 1 being most important.

___ Weeds

___ Insect pests

___ Plant diseases

___ Soil fertility

___ Yields

___ Variety selection

___ Operating loans

___ Quantity of labor

___ Quality of labor

___ Storage of product

___ Irrigation

___ Other (Describe)_____

17. In regards to your top three production concerns in question 16, please provide some detail as to the particular problems encountered such as specific weeds, insects, or labor issues.

1. _____

2. _____

3. _____

18. Do you grow any commodities that are not certified organic? ___ Yes ___ No

- If yes, what are your non-certified organic commodities and why is your operation not totally organic?

_____

_____

- If your goal is to be totally organic, is this goal shared by your family? ___ Yes ___ No

19. What do you consider to be the weak link in your entire organic management system?

_____

_____

20. Is obtaining operating loans from banks a problem for you? ___ Yes ___ No

- If a problem, what would convince a lender to support your plans?

_____

_____

21. We need your input as to the research agenda we should develop to meet the needs of Ohio organic producers. Please provide suggestions for research questions OARDC should pursue in its new organic research initiative.

_____

_____

_____

21. What are your top three sources of information regarding organic production practices?

1. _____

2. _____

3. _____

Ohio State University staff will tear the form here when it is received to maintain confidentiality of the previous responses.

- On-farm field research will be a key component of OARDC's organic initiative. If you are willing to participate in organic on-farm research trials, please fill in the following information:

  Name_____

  Address_____

  Phone_____ E-mail_____

- Future organic agriculture studies will likely involve case studies or in-depth interviews.

  Would you be willing to participate in such in-depth studies? ___ Yes ___ No

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